

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (canceled)

2. (canceled)

3. (canceled)

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17. (canceled)
18. (canceled)
19. (canceled)
20. (canceled)
21. (currently amended) A device for ~~use with a transducer to extract~~ extracting an analyte from a sample, the sample containing cells or viruses, the device comprising a ~~cartridge~~ having:
 - a) a cartridge having:
 - i [[a]]) a lysing chamber for lysing the cells or viruses to release the analyte therefrom, wherein the lysing chamber contains capture material for capturing the cells or viruses in the sample as the sample flows through the lysing chamber, the capture material comprises at least one filter or beads, and wherein the lysing chamber is defined by at least one wall having an external surface ~~to which the transducer may be coupled~~;
 - ii [[b]]) at least one waste chamber for receiving used sample fluid that has flowed through the lysing chamber;
 - iii [[c]]) at least a third chamber for receiving the analyte released from the cells or viruses; and
 - iv [[d]]) at least one flow controller for directing the used sample fluid, from which the cells or viruses have been separated, to flow into the waste chamber after the sample fluid flows through the lysing chamber and for directing the analyte released from the cells or viruses to flow into the third chamber; and
 - b) a transducer arranged to sonicate the lysing chamber, the transducer being coupled to the external surface of the wall.

22. (previously presented) The device of claim 21, wherein the third chamber comprises a mixing chamber for mixing the analyte with one or more reagents.
23. (previously presented) The device of claim 22, wherein the cartridge further includes a reaction chamber in fluid communication with the mixing chamber for holding the analyte for chemical reaction or optical detection.
24. (previously presented) The device of claim 22, wherein the cartridge further includes:
 - i) a reaction chamber in fluid communication with the mixing chamber for amplifying the analyte; and
 - ii) a capillary electrophoresis area in communication with the reaction chamber.
25. (previously presented) The device of claim 21, wherein the third chamber comprises a reaction chamber for amplifying the analyte and holding the analyte for optical detection, and wherein the cartridge is in combination with an instrument having a heater for heating the reaction chamber and having at least one optical detector for detecting the analyte.
26. (previously presented) The device of claim 21, wherein the third chamber comprises a reaction chamber for amplifying the analyte.
27. (previously presented) The device of claim 21, wherein the wall is dome-shaped and convex with respect to the transducer.
28. (previously presented) The device of claim 21, wherein the wall comprises a sheet or film of polymeric material.
29. (previously presented) The device of claim 28, wherein the wall has a thickness in the range 0.025 to 0.1 mm.
30. (previously presented) The device of claim 21, wherein the wall has stiffening ribs extending radially from a central portion of the wall.

31. (previously presented) The device of claim 21, wherein the cartridge includes a sample chamber having a port for introducing a sample into the cartridge and further includes a sample flow path extending from the sample chamber, the lysing chamber being in the sample flow path.
32. (previously presented) The device of claim 21, wherein the at least one flow controller comprises at least one valve for directing the used sample fluid to flow into the waste chamber via a first flow path in the cartridge and for directing the analyte to flow into the third chamber via a second flow path in the cartridge.
33. (previously presented) The device of claim 21, wherein the capture material comprises at least one filter having a pore size sufficient to capture the cells or viruses.
34. (previously presented) The device of claim 33, further comprising beads in the lysing chamber for rupturing the cells or viruses.
35. (previously presented) The device of claim 21, wherein the capture material comprises beads.
36. (canceled).
37. (currently amended) The device of claim 21 [[36]], wherein the wall is sufficiently deflectable to deflect in response to vibratory movements of the transducer to generate pressure waves or pressure pulses in the lysing chamber.
38. (canceled).
39. (canceled).
40. (previously presented) The device of claim 21, wherein the capture material comprises a first set of beads for binding the cells or viruses, and wherein the lysing chamber further contains a second set of beads for rupturing the cells or viruses.

41. (canceled)

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